

Patent Claims

- 5 1. Machine for the manufacture of a fiber material web (12), in particular a web of paper or card, having a forming region including at least one circulating, endless, dewatering belt (16, 18), characterized in that
it includes at least one pressing zone (14) combined with a suction system.
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2. Machine in accordance with claim 1,
characterized in that
it includes a former (10) with two circulating dewatering belts (16, 18) which converge while forming a material inlet gap (20) and are subsequently led as an inner belt and an outer belt respectively over a forming element (22), such as in particular a forming roll.
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3. Machine in accordance with claim 1 or claim 2,
characterized in that
the pressing zone (14) combined with a suction system is provided in the web running direction (L) in front of a nip (30) formed between a dryer cylinder (26), preferably a Yankee cylinder, and a counter element (28).
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4. Machine in accordance with one of the preceding claims,
characterized in that
an element (32) to which suction can be applied is provided to form a pressing zone (14) combined with a suction system.
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5. Machine in accordance with claim 4,
characterized in that
the element (32) to which suction can be applied includes a suction
roll.

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6. Machine in accordance with one of the preceding claims,
characterized in that
the fiber material web (12) is led to the pressing zone (14) together
with the inner belt (16).

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7. Machine in accordance with claim 6,
characterized in that
a further dewatering belt (34) is guided around the element (32) to
which suction can be applied in addition to the inner belt (16) which
15 is supported on the latter, with the fiber material web (12) lying be-
tween the inner belt (16) and the further dewatering belt (34).

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8. Machine in accordance with claim 7,
characterized in that
20 a belt (36) arranged within the loop of the further dewatering belt
(34) is tensioned around the element (32) to which suction can be
applied.

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9. Machine in accordance with claim 7 or claim 8,
characterized in that
25 the further dewatering belt (34) led around the element (32) to which
suction can be applied is formed by a conventional, in particular
non-structured screen.

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10. Machine in accordance with one of the claims 1 to 8,
characterized in that
the further dewatering belt (34) which is guided around the element
(32) to which suction can be applied is formed by a structured
5 screen.
11. Machine in accordance with one of the preceding claims,
characterized in that
the further dewatering belt (34) which is guided around the element
10 (32) to which suction can be applied is formed by a TAD screen (TAD
= Through-Air-Drying).
12. Machine in accordance with one of the preceding claims,
characterized in that
15 the further dewatering belt (34) which is led around the element (32)
to which suction can be applied is formed by a dewatering screen
with differing screen permeability zone-wise, such as in particular a
so-called DSP screen.
- 20 13. Machine in accordance with one of the preceding claims,
characterized in that
the tension of the belt (36) arranged within the loop of the further
dewatering belt (34) and tensioned around the element (32) to which
suction can be applied is greater than or equal to 60 kN/m.
- 25 14. Machine in accordance with one of the preceding claims,
characterized in that
the belt (36) arranged within the loop of the further dewatering belt
(34) and tensioned around the element (32) to which suction can be
30 applied has a smooth surface.

15. Machine in accordance with one of the claims 1 to 13,
characterized in that
the belt (36) arranged within the loop of the further dewatering belt
5 (34) and tensioned around the element (32) to which suction can be
applied has a drilled and/or grooved surface.
16. Machine in accordance with one of the preceding claims,
characterized in that
10 the pressing zone (14) which is combined with a suction system
forms a longitudinal gap.
17. Machine in accordance with one of the preceding claims,
characterized in that
15 the element (32) to which suction can be applied is simultaneously
provided as the counter-element (28) which forms the nip (30) with
the dryer cylinder or the Yankee cylinder (26).
18. Machine in accordance with one of the preceding claims,
20 characterized in that
the outer belt (18) is formed by a dewatering screen.
19. Machine in accordance with one of the preceding claims,
characterized in that
25 the former (10) is provided as a crescent former, the outer belt (18)
of which is formed by a dewatering screen and the inner belt (16) of
which is formed by a felt.

20. Machine in accordance with one of the preceding claims,
characterized in that
the dry content of the fiber material web (12) before the pressing
zone (14) lies in a range from about 8 to about 15 % and in a range
of about 40 % or higher after the pressing zone (14).
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21. Machine in accordance with one of the preceding claims,
characterized in that
a suction box (38) is provided between the forming element (22) and
the pressing zone (14).
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22. Machine in accordance with claim 21,
characterized in that
the dry content of the fiber material web (12) directly after the suc-
tion box (18) and before the pressing zone (14) lies in a range of
about 23 %.
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23. Machine in accordance with one of the preceding claims,
characterized in that
the fiber material web (12) can be supplied to the dryer cylinder or
to the Yankee cylinder (26) with the nip (30) open.
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24. Machine in accordance with one of the preceding claims,
characterized in that
the fiber material web (12) can be supplied to the dryer cylinder or
to the Yankee cylinder (26) with the nip (30) closed.
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25. Machine in accordance with one of the preceding claims,
characterized in that
a guide roll (40) for the inner belt (16) which moves the fiber mate-
rial web (12) with it is provided in the web running direction (L) after
5 the nip (30) and is in particular an adjustable guide roll.
26. Machine in accordance with one of the preceding claims,
characterized in that
the tension of the further dewatering belt (34) amounts to approxi-
10 mately 5 kN/m.
27. Machine in accordance with one of the preceding claims,
characterized in that
the tension of the outer belt (18) amounts to approximately 8 kN/m.
- 15 28. Machine in accordance with one of the preceding claims,
characterized in that
the tension of the inner belt (16) amounts to approximately 5 kN/m.
- 20 29. Machine in accordance with one of the preceding claims,
characterized in that
a double screen former is provided as the former (10).
- 25 30. Machine in accordance with one of the preceding claims,
characterized in that
a further element (44) to which suction can be applied is provided
within the loop of the further dewatering belt (34).

31. Machine in accordance with claim 30,
characterized in that
the further element (44) to which suction can be applied is only
wrapped around by the further dewatering belt (34).

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32. Machine in accordance with claim 30 or 31,
characterized in that
the further element (44) to which suction can be applied is formed
by a suction roll.

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33. Machine in accordance with claim 30 or 31,
characterized in that
the further element (44) to which suction can be applied is formed
by a suction box.

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34. Machine in accordance with one of the preceding claims,
characterized in that
the fiber material web (12) can be supplied to the dryer cylinder or
to the Yankee cylinder (26) by closing of the nip (30).

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35. Machine in accordance with one of the preceding claims,
characterized in that
both the inner belt (16) and also the further dewatering belt (34)
each formed by a felt.

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36. Machine in accordance with one of the preceding claims,
characterized in that
a roll (48) lies opposite to the element (32) to which suction can be
applied within the loop of the further dewatering belt (34).

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37. Machine in accordance with claim 36,
characterized in that
the roll (48) has a closed surface.
- 5 38. Machine in accordance with claim 36,
characterized in that
the roll (48) is grooved and/or blind drilled.
- 10 39. Machine in accordance with one of the preceding claims,
characterized in that
the roll (48) provided within the loop of the further dewatering belt
(34) is formed by a rigid roll.
- 15 40. Machine in accordance with one of the claims 1 to 38,
characterized in that
a shoe pressing unit lies opposite to the element (32) to which suc-
tion can be applied within the loop of the further dewatering belt
(34).
- 20 41. Machine in accordance with claim 40,
characterized in that
the shoe pressing unit includes a shoe pressing roll.
- 25 42. Machine in accordance with one of the preceding claims,
characterized in that
a double screen former is provided as the former (10) and the fur-
ther dewatering belt (34) is formed by a felt.